



NMMSS News

Nuclear Materials Management & Safeguards System

Published Periodically by & for NMMSS Users

October 2016

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Mark your Calendar

The NMMSS Annual Users Training Meeting is scheduled for May 15-18, 2017, in Las Vegas, Nevada. Registration and preliminary agenda information about the 2017 training event will become available in December 2016. Meanwhile, if you have any recommendations or suggested topics for training, presentations, or breakout sessions for the annual training event, please contact Pete Dessaulles, pete.dessaules@nnsa.doe.gov, or Mirabelle Shoemaker, mirabelle.shoemaker@nrc.gov.

DOE Reconciliation

Reconciliation of facility data is required annually after submission of inventory and by the date specified in DOE O 474.2, Change 2. The process is as follows:

1. The facility submits its inventory for the period and is provided with the results of processing in NMMSS.
2. Preliminary reports are available upon request from NMMSS for facility use in comparing facility data to NMMSS balances.
3. The data at the facility and reported data in NMMSS are compared. Adjustments are made to the facility books or to NMMSS, as appropriate, regarding balances of material by type, ownership code, and project number (if DOE-owned), and foreign obligation, if applicable.

Please contact Mary McConnell at Mary.McConnell@nnsa.doe.gov or (301) 903-6240 with questions.

NRC Reconciliation – Some Helpful Information!

NRC regulations require licensees to report to NMMSS if they possess one gram or more of special nuclear material (SNM) (plutonium, uranium-233, or uranium-235 contained in enriched uranium) or one kilogram or more of foreign-obligated source material (natural uranium, depleted uranium, or thorium). Below are some tips to help facilitate a smooth reconciliation. As always, NMMSS analysts are available to provide technical assistance by phone or email. Please see the Points of Contact at the end of this newsletter for a listing of the NMMSS analysts.

1. All Government-owned material is reportable per NUREG/BR-0006, Rev. 7, including all SNM, source material, and other materials listed in the Reportable Elements and Isotopes section of the [NMMSS User's Guide](#).
2. For non-government-owned material, licensees are required to submit a Material Balance Report (MBR) or Material Status Reports (742 or 742C) when their facilities:
 - Possessed, shipped, or received one gram (≥ 0.5 g) or more of SNM during the reporting period (see the table below); OR
 - Possessed, shipped, or received one kilogram (≥ 0.5 kg) or more of foreign obligated source material (natural uranium, depleted uranium, or thorium – see Table 1 below); OR
 - Imported or exported 1 kg (≥ 0.5 kg) or more of source material.

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- 3. Fillable Forms 742 and 742C are posted on the NMMSS website – <http://nnsa.energy.gov/aboutus/ourprograms/nuclearsecurity/nmmsshome/nmmssinfo/doenrcforms>

The forms are also posted on the NRC website – <http://www.nrc.gov/reading-rm/doc-collections/forms>

Material	Material Type	Reporting Unit (rounded up)	Weight that is Reported
Enriched uranium*	20	Whole gram	Element and isotope
Plutonium	50	Whole gram	Element and isotope
Uranium-233	70	Whole gram	Element and isotope
Plutonium-238	83	Tenth of a gram	Element and isotope
Depleted uranium	10	Whole kilogram	Element and isotope
Normal uranium	81	Whole kilogram	Element only
Thorium	88	Whole kilogram	Element only

***Assay Levels of Enriched Uranium (from NUREG/BR-0007, Rev. 6)**

Report enriched uranium by assay level (see below) on separate MBR forms.

- E-1** Greater than normal but less than 5%
- E-2** 5% or more, but less than 20%
- E-3** 20% or more, but less than 80%
- E-4** 80% or more

For all regulatory questions, please contact Mirabelle Shoemaker, NRC NMMSS Project Manager, at 301-415-7363, mirabelle.shoemaker@nrc.gov.

Reporting Batch Names for Imports and Exports

Every country reports information on nuclear imports and exports to the International Atomic Energy Agency (IAEA) to support its efforts in ensuring accountability for nuclear material worldwide. The IAEA utilizes a process called transit matching to match the information for each nuclear import to that of a corresponding export.

U.S. facilities report imports and exports of nuclear material to NMMSS on DOE/NRC Form 741. Field 26d is used to report the batch name used by the shipping facility, and field 27d is used to report the batch name used by the receiving facility. The batch name reported to NMMSS can contain up to 16 alphanumeric characters. Facilities reporting imports need to submit both the shipper’s (A-A) and the receiver’s (A-B) information to NMMSS. For the A-A side, the facility should be reporting to NMMSS, in field 26d, the batch name(s) that the foreign facility assigned to the shipment.

The NMMSS system now permits the use of differing batch names between shipper and receiver, which means that facilities can report the receipt of imported material using batch names dictated by their customary business practices (field 27d) while preserving the batch names reported by the shipper (field 26d).

To help facilitate the U.S. responses to the IAEA transit matching feedback, please report the batch name for each item as reported by the shipping facility. Please contact NMMSS analysts for any questions or assistance with reporting batch names.

A Closer Look: Internal Obligation Exchanges

An obligation on nuclear material is the commitment by one government to another to treat nuclear materials, nonnuclear materials, equipment, and components in a manner consistent with the bilateral agreement signed between the two governments. Although other conditions upon the use of the material vary depending upon the specific bilateral agreement, they generally entail providing adequate physical security for the material, placing the material under IAEA safeguards, banning the usage of the material for naval propulsion, requiring that nuclear material derived from obligated material also carry those obligations, and requiring prior consent before enriching the material above 20 weight percent U-235, transferring the material to a third party, or reprocessing spent fuel. Violation of the obligations placed on nuclear material may result in the source government banning all exports of nuclear material to the country within which the violation occurred.

Foreign governments have established programs automatically granting their prior consent for obligation exchanges within the U.S., subject to certain conditions. Generally, approval for exchanges between the same quantities of the same type and physical form of material has been pre-approved.

Approval is, however, required before performing obligation exchanges between different types of material, between irradiated and non-irradiated material, and for any exchange between DOE and NRC licensees.

NMMSS Obligation Reporting

Boxes 17-21 on DOE/NRC Form 741 are used to report obligations for imports, exports, and domestic transactions. A [list](#) of obligation codes is found on the NMMSS website. The facility enters, for each obligation entity, a discrete line number, obligation code, material type, and element weight (along with isotope weight for enriched uranium). The graphic below illustrates these fields on Form 741 and possible inputs.

The image shows a portion of DOE/NRC Form 741, titled "NUCLEAR MATERIAL TRANSACTION REPORT". A blue callout box highlights fields 17 through 21. Below the callout are two tables providing possible inputs for these fields.

17. LINE NUMBER	18. COUNTRY OF OBLIGATION	19. MATERIAL TYPE	20. OBLIGATED ELEMENT WEIGHT	21. OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only
31	Australia	Depleted Uranium	10	-
32	Canada	Enriched Uranium	20	Gram U-235
33	Euratom	Plutonium	50	-
34	Japan	Uranium-233	70	Gram U-233
91	Australia/Euratom	Natural Uranium	81	-
92	Canada/Euratom	Thorium	88	-

Country Code	Country Obligation	Material Type	Domestic Code	Import/Export Code	Element	Isotope
31	Australia	Depleted Uranium	10	D	Kilogram Uranium	-
32	Canada	Enriched Uranium	20	EG	Gram Uranium	Gram U-235
33	Euratom	Plutonium	50	P	Gram Plutonium	-
34	Japan	Uranium-233	70	EK	Gram Uranium	Gram U-233
91	Australia/Euratom	Natural Uranium	81	N	Kilogram Uranium	-
92	Canada/Euratom	Thorium	88	T	Kilogram Thorium	-



Erratum Sheet: NMMSS User Guide 2.0, Page 2-5, Table 2-3. -- Material Type 81

The table below shows a correction to the assay range for normal uranium in Table 2-3 in the NMMSS Users Guide, Rev. 1, dated April 1, 2013. We thank Karen McCulloch from the DOE Portsmouth Site for identifying this error.

MT Code	Type Description	Reporting Unit	MT Code	Type Description	Reporting Unit
	Uranium Depleted in U-235		44	Americium-241	gm
10	Total		45	Americium-243	gm
11	<0.21% U-235	kg	46	Curium	gm
12	0.21 to < 0.24% U-235	kg	48	Californium	microgram
13	0.24 to < 0.26% U-235	kg		Plutonium	
14	0.26 to < 0.28% U-235	kg	50	Total	gm
15	0.28 to < 0.31% U-235	kg	51	< 4.00% Pu-240	gm
16	0.31 to < 0.50% U-235	kg	52	4.00 < 7.00% Pu-240	gm
17	0.50 to < 0.60% U-235	kg	53	7.00 < 10.00% Pu-240	gm
18	0.60 to <0.710% U-235	kg	54	10.00 < 13.00% Pu-240	gm
	Uranium Enriched in U-235		55	13.00 < 16.00% Pu-240	gm
20	Total		56	16.00 < 19.00% Pu-240	gm
21	> 0.712 to < 0.90% U-235	gm	57	19.00% and above Pu-240	gm
22	0.90 to < 1.15% U-235	gm		Lithium Enriched in Li-6	
23	1.15 to < 1.60% U-235	gm	60	Total	kg
24	1.60 to < 2.00% U-235	gm	61	>Normal (7.42%) to < 55.00%	kg
25	2.00 to < 2.60% U-235	gm	62	55.00 to < 80.00%	kg
26	2.60 to < 2.90% U-235	gm	63	80.00% and above	kg
27	2.90 to < 3.10% U-235	gm		Uranium Enriched in U-233	
28	3.10 to < 3.40% U-235	gm	70	Total	gm
29	3.40 to < 3.90% U-235	gm	71	< 5 ppm U-232	gm
30	3.90 to < 4.10% U-235	gm	72	5 to < 10 ppm U-232	gm
31	4.10 to < 5.00% U-235	gm	73	10 to < 50 ppm U-232	gm
32	5.00 to < 10.00% U-235	gm	74	50 ppm and above U-232	gm
33	10.00 to < 20.00% U-235	gm	81	Normal Uranium	
34	20.00 to < 35.00% U-235	gm		Total	
35	35.00 to < 45.00% U-235	gm		0.710 to ≤ 0.712% U-235	kg
36	45.00 to < 80.00% U-235	gm	82	Neptunium-237	gm
37	80.00 to < 92.00% U-235	gm	83	Plutonium-238 (Pu-238)	gm to tenth
38	92.00 to < 94.00% U-235	gm	86	Deuterium (D2) Total	kg to tenth
39	94.00% and above U-235	gm	87	Tritium Total	gm to hundredth
	Plutonium-242		88	Thorium Total	kg
40	Total	gm	89	U in Cascades Total	gm
41	20% thru 60%	gm	90	This series is available for local use	
42	> 60%	gm			

gm=gram, H-3=tritium, kg=kilogram, MT=material type



Electronic Data Submission

What constitutes “computer-readable format as required by NUREG/BR-0006 and NUREG/BR-0007”? It is more than a scanned image or a pdf file, which requires a NMMSS analyst to manually type the data into the database. Manual transcription of data, of course, introduces the potential for human error.

Submitting data electronically automates this process, eliminating the need for manual entry and minimizing the potential for human error. Ideally, electronic submittal of data is accomplished with XML files. NMMSS provides two tools for creating the XML files: the [SAMS](#) software and [Fillable Forms](#). SAMS is a facility-oriented version of NMMSS that allows users to enter data, perform edit checks, and convert the data to XML so that potential problems can be resolved before NMMSS receives the files. Fillable forms generate XML code from data that users enter into a facsimile of the appropriate NRC form. Instructions for preparing electronic data submissions to NMMSS can be found on the [D-23](#) and [D-24](#) reports, for DOE contactors and NRC licensees, respectively. Please contact a NMMSS analyst for further information or assistance on electronic data submittal.

Upcoming NMMSS Training Course for NRC

NMMSS training for NRC licensees and Federal employees is scheduled for **November 1-3, 2016**, at DOE Headquarters in Germantown, MD. This course is designed for individuals with limited experience in NRC reporting requirements or those who need a refresher. The course content is based on NUREG/BR-0006, Rev. 7 and NUREG/BR-0007, Rev. 6. The following topics, among others, will be included:

- Completion of data forms: transactions, inventory, and material balance;
- Inventory reconciliation;
- Foreign obligations reporting; and
- Report products.

The desired class size is 10 participants or less. A minimum of 6 is required to conduct the class. You may register for the class by contacting Mitch Hembree at (301) 903-6299 or Mitch.Hembree@nnsa.doe.gov and providing your name, nationality, job title, facility name, address, telephone number, and email address. Due to security requirements for entering the DOE Germantown facility, all potential students who are not U.S. citizens MUST register for this workshop at least 45 days prior to the instruction dates. There are no training fees for this course.

If interested, please contact Mitch Hembree by October 27, 2016.

Upcoming NMMSS I Training Courses for DOE

The DOE NMMSS I (MCA-112) training course has been scheduled for **February 7-10, 2017**, at DOE Headquarters in Germantown, MD. This course is designed for personnel who have less than two years of experience in nuclear materials accounting.

The desired class size is 12 or less. A minimum of 6 is required to conduct the class. You may register for the class by contacting Mitch Hembree at (301) 903-6299, or by email at Mitch.Hembree@nnsa.doe.gov, and providing him with your name, nationality, job title, facility name, address, telephone number, and email address. Students must also register for the class with the National Training Center (NTC) at <https://ntc.doe.gov/default.aspx>. There are no training fees for DOE personnel or DOE contractors.

If interested, please contact Mitch Hembree by January 25, 2017.

Available Products to Assist the NMMSS Community

The NMMSS staff has recently updated the following products that are available to NMMSS users.

- D-2: **DOE Directory of Reporting Identification Symbols (RIS)**. This directory contains a listing of RISs for the DOE sites that NMMSS accepts as valid as of May 2016.
- D-3: **NRC Directory of Reporting Identification Symbols (RIS)**. This directory contains a listing of RISs for the licensed sites that NMMSS accepts as valid as of May 2016.
- D-15: **International Nuclear Facilities**. This directory contains a listing of RISs for nuclear sites located outside of the United States that NMMSS accepts as valid as of May 2016.
- **SAfeguards Management Software (SAMS)**: SAMS is a facility-based version of the NMMSS software maintained by DOE and NRC. Version 8.0, the most recent update of the SAMS software, lets users input data and perform edit checks for transactions, material balance reports, and inventories, and includes an updated Authority Reference File.

Copies of the above items are available free of charge. Please contact any member of the NMMSS staff, or send a request to the NMMSS mailbox (NMMSS@nnsa.doe.gov) if you would like any of the above items sent to you.

NMMSS Website Updates

- Presentations and Training Slides: NMMSS Users Meeting 2016:
<http://nnsa.energy.gov/aboutus/ourprograms/nuclearsecurity/nmmsshome>
- D-23: DOE Contractors Electronic Input Manual: <https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/D-23%20DOE%20Contractors%20Electronic%20Input%20Manual%20-%20August%202016.pdf>
- D-24: NRC Licensee Electronic Input Manual: <https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/D-24%20NRC%20Licensee%20Electronic%20Input%20Manual%20-%20August%202016.pdf>
- Updated DOE/NRC Forms 740M, 741,742, and 742C, both PDF and fillable PDF:
<http://nnsa.energy.gov/aboutus/ourprograms/nuclearsecurity/nmmsshome/nmmssinfo/doenrcforms>
<http://nnsa.energy.gov/aboutus/ourprograms/nuclearsecurity/nmmsshome/nmmssinfo/fillableforms>
- Schedule of Upcoming Training in 2016-2017:
<https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/Upcoming%20NMMSS%20Training%202016-2017.pdf>

Transaction/Inventory Due Dates for DOE Sites

Reporting Month	Transaction Due	Inventory Due
September 2016	October 11	October 17
October 2016	November 10	November 15
November 2016	December 12	December 15
December 2016	January 10	January 16
January 2017	February 10	February 15
February 2017	March 10	March 15
March 2017	April 10	April 17

Upcoming 2016-2017 Observed Holidays

Veterans Day	Friday, November 11, 2016
Thanksgiving Day	Thursday, November 24, 2016
Christmas Day	Monday, December 26, 2016
New Year's Day	Monday, January 2, 2017
Martin Luther King, Jr. Day	Monday, January 16, 2017
Presidents' Day	Monday, February 20, 2017



NMMSS Points of Contact For Nuclear Material Reporting Technical Support and Assistance

Name	Function	Phone	Email Address
Elaine Beacom	International accounting (IAEA and obligations), NMMSS reports	(301) 903-1328	Elaine.Beamon@nnsa.doe.gov
Carl Berger	NRC reconciliation, data processing	(301) 903-3656	Carl.Berger@nnsa.doe.gov
Mitch Hembree	International accounting (IAEA and obligations), NMMSS training	(301) 903-6299	Mitch.Hembree@nnsa.doe.gov
Gary Hirsch	Specialized analysis, IAEA Selected facilities	(301) 903-6870	Gary.Hirsch@nnsa.doe.gov
Mark Huffman	NRC reconciliation, data processing	(301) 903-0236	Mark.Huffman@nnsa.doe.gov
James Lavery	Data processing	(301) 903-0872	James.Lavery@nnsa.doe.gov
Mary McConnell	DOE reconciliation, NRC reconciliation	(301) 903-6240	Mary.McConnell@nnsa.doe.gov
Ali Tabatabai	Issues/suggestions	(301) 515-9654	Ali.Tabatabai@hq.doe.gov

Program Management

Department of Energy
 Peter Dessaulles (301) 903-4525
 Pete.Dessaules@nnsa.doe.gov

Nuclear Regulatory Commission
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 Leigh.Gunn@nnsa.doe.gov

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 Santiago Aguilar (301) 415-7918
 Santiago.Aguilar@nrc.gov

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Unclassified/Overnight Surface Mailing Addresses

Unclassified

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 Washington, DC 20585-1290

Overnight – Unclassified

Mary McConnell
 Attn: NMMSS Program, NA-532
 U.S. Department of Energy
 19901 Germantown Road
 Germantown, MD 20874-1207

Classified

The NMMSS classified mailing address is available on the Safeguards and Security Information Management System (SSIMS) or by calling a NMMSS analyst. Identify Mary McConnell as the recipient and NA-532 as the organization.

IMPORTANT: The “DO NOT X-RAY” marking does not prevent incoming packages from being sanitized. Please package compact discs (CDs) in cardboard rather than plastic casings. The plastic is heated by the sanitization machine, thereby warping the CD. There is less chance of this occurring if the CD is packaged in cardboard.

For information on transmitting classified data to NMMSS electronically, contact Pete Dessaulles at (301) 903-4525 or Pete.Dessaules@nnsa.doe.gov.

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